



LCP TOPHAT®

Structural Top Hat & Batten



Integrity In **Partnership**



CERT NO. FM 59595
BS EN ISO 9001 : 2008



FEATURE

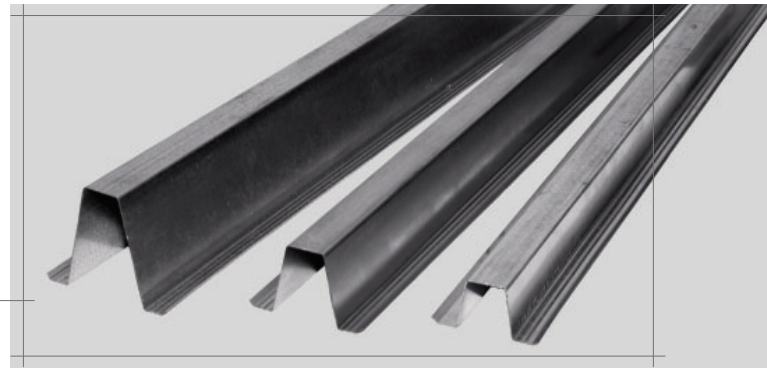
LCP TOPHAT® structural top hat and batten is ideal for a wide variety of efficient steel design solutions, ranging from small to medium steel buildings as well as roof battens and ceiling application. **LCP TOPHAT®** is highly durable and does not burn, warp, rot and is free of termite attacks.

AESTHETICALLY PLEASING & COST EFFECTIVE

- ▶ High-tensile steel – for high strength and low weight.
- ▶ Galvanised or zinc-aluminium alloy coating – corrosion free.
- ▶ Roll-formed, thus long lengths in excess of 6 meters is possible.
- ▶ Can be lapped for structural continuity.
- ▶ Ribbed flange for easy fastening.

MATERIALS

LCP TOPHAT® is manufactured from high-tensile (G500/ G550) steel with Z275 galvanised or AZ150 zinc-aluminium alloy coating, conforming to AS 1397.



ADVERSE CONDITIONS

LCP TOPHAT® will give excellent durability in most applications. In exposed conditions, unwashed areas subject to salt-laden air or other corrosive matter may require additional protection. **LCP TOPHAT®** is not recommended for use in enclosed areas within 450mm of moist soil.

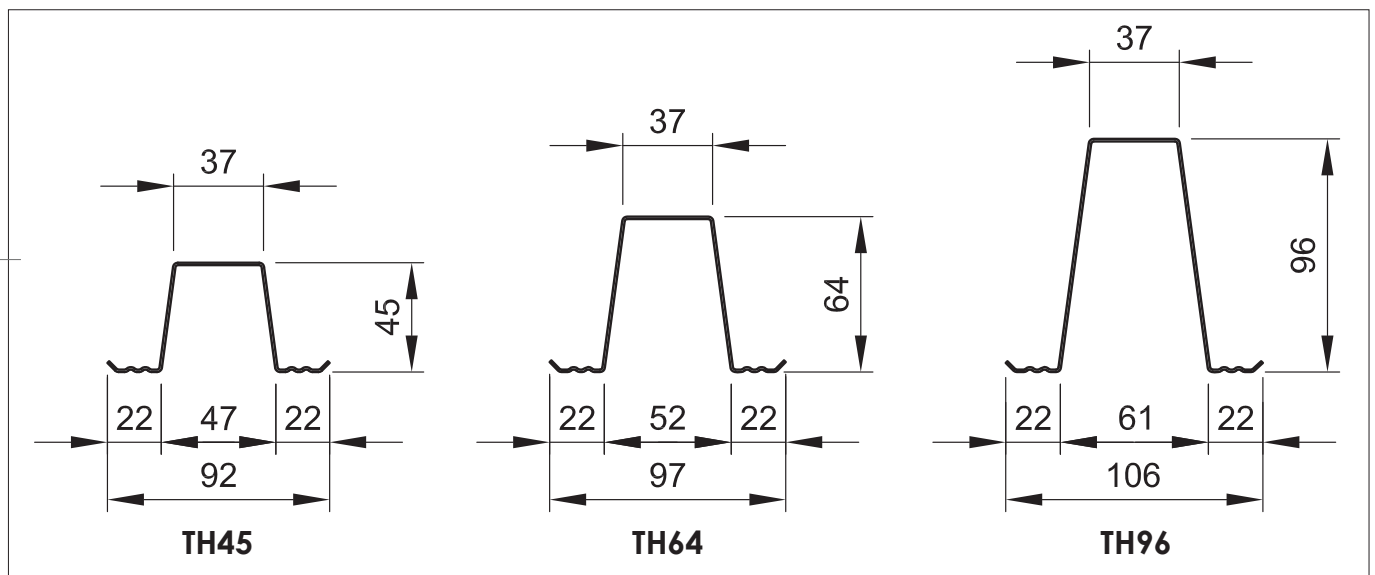
COMPATIBILITY

Contact between galvanised steel and copper (e.g. pipework) must be avoided as premature corrosion will occur.

SPECIFICATIONS

All top hats shall be **LCP TOPHAT®** sections, roll-formed, in single continuous lengths and ribbed flanges for easy fastening. **LCP TOPHAT®** shall be supported by submission of section properties and capacity calculations / data in accordance with AS 4600, AS 3623 and BS 5950. All sections shall be produced from high-tensile G500 / G550 steel with a galvanised / zinc- aluminium alloy coating conforming to AS 1397. All sections must be installed in accordance with the manufacturer's recommendations with particular reference to the number, size, grade and positioning of fasteners.

LCP TOPHAT® PROFILE



TECHNICAL SPECIFICATION

SECTION PROPERTIES

LCP TOPHAT® - Product Thickness, Grade & Mass

Products	Thickness BMT	Steel Grade	Mass (kg/m)
LCP TOPHAT® TH96075	0.75 mm	G550	1.70
LCP TOPHAT® TH96100	1.00 mm	G550	2.27
LCP TOPHAT® TH96120	1.20 mm	G500	2.72
LCP TOPHAT® TH64075	0.75 mm	G550	1.30
LCP TOPHAT® TH64100	1.00 mm	G550	1.73
LCP TOPHAT® TH64120	1.20 mm	G500	2.08
LCP TOPHAT® TH45075	0.75 mm	G550	1.05

LCP TOPHAT® - Full Section Properties

Section	Area A_g mm ²	I_x 10 ³ mm ⁴	I_y 10 ³ mm ⁴	Z_x^+ 10 ³ mm ³	Z_x^- 10 ³ mm ³	Z_y^+ 10 ³ mm ³	Z_y^- 10 ³ mm ³	r_x mm	r_y mm	J mm ⁴	β_x mm	I_w 10 ⁶ mm ⁶
LCP TOPHAT® TH96075	206	245	152	4.80	5.44	2.99	2.99	34.5	27.1	38.7	157	63.8
LCP TOPHAT® TH96100	274	325	202	6.39	7.17	3.98	3.98	34.4	27.1	91.4	158	82.8
LCP TOPHAT® TH96120	328	389	242	7.65	8.53	4.77	4.77	34.4	27.1	158	158	97.3
LCP TOPHAT® TH64075	157	90.4	83.7	2.62	3.06	1.97	1.97	24.0	23.1	29.4	109	25.0
LCP TOPHAT® TH64100	208	120	111	3.48	4.03	2.61	2.61	24.0	23.1	69.4	109	32.5
LCP TOPHAT® TH64120	253	147	166	4.22	4.93	3.51	3.51	24.1	25.6	122	110	41.1
LCP TOPHAT® TH45075	120	29.5	68.9	1.36	1.62	1.62	1.62	15.7	24.0	22.5	78.0	8.84

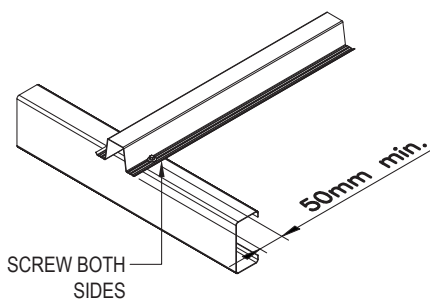
LCP TOPHAT™ - Effective Section Properties

Section	Area $A_e(f_y)$ mm ²	I_{ex}^+ 10 ³ mm ⁴	I_{ex}^- 10 ³ mm ⁴	I_{ey}^+ 10 ³ mm ⁴	I_{ey}^- 10 ³ mm ⁴	Z_x^+ 10 ³ mm ³	Z_x^- 10 ³ mm ³	Z_y^+ 10 ³ mm ³	Z_y^- 10 ³ mm ³
LCP TOPHAT® TH96075	92.0	236	200	118	118	4.73	3.49	2.05	2.05
LCP TOPHAT® TH96100	144	315	315	165	165	6.30	6.10	2.93	2.93
LCP TOPHAT® TH96120	192	382	386	204	204	7.59	7.57	3.69	3.69
LCP TOPHAT® TH64075	91.0	87.0	82.6	74.0	74.0	2.59	2.30	1.62	1.62
LCP TOPHAT® TH64100	141	116	116	102	102	3.44	3.29	2.29	2.29
LCP TOPHAT® TH64120	188	143	145	156	156	4.18	4.16	3.20	3.20
LCP TOPHAT® TH45075	85.3	28.0	26.5	66.6	66.6	1.34	1.16	1.53	1.53

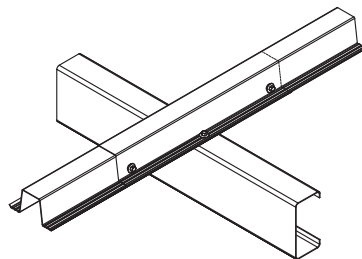
Note: For other thickness of LCP TOPHAT®, please contact LCP Building Products Pte. Ltd., Technical Department.

LCP TOPHAT™ LAPPING & FIXING DETAIL

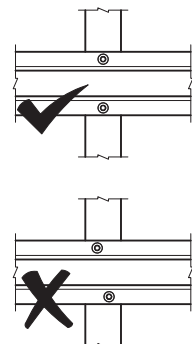
TYPICAL END ATTACHMENT DETAIL



TYPICAL LAPPED ATTACHMENT DETAIL



TYPICAL FIXING DETAIL



MANUFACTURING and CONSTRUCTION

ORDERING

When ordering, please have the following information available to ensure speedy processing of your requirements:

- ▶ Customer/Company name, address, phone number & fax number.
- ▶ Contact person name & phone number.
- ▶ Name of Product (e.g. **LCP TOPHAT®**) and material (e.g. G550 steel). Thickness of product (e.g. 0.75mm BMT).
- ▶ Coating (e.g. Galvanised).
- ▶ Number/quantity and length of sheets (e.g. 10 pieces of 5 metres length per piece).
- ▶ Delivery address (e.g. No. 10 Telok Kurau Lane, Singapore).
- ▶ Delivery date & preferred time.
- ▶ Site access (please specify whether current access to delivery location would permit entry by standard 12 metres length flat-bed trailers).
- ▶ Cranage requirement (please specify whether crane will be required at site).

LENGTH

LCP TOPHAT® is manufactured at **LCP Building Products Pte. Ltd.** factory. The length of the top hat is dependent on design requirements, site conditions and workability, height of the top hat & thickness, and transportation constraints. Lengths specified must be actual site measurements and not plan dimensions. The length should be measured accurately and allowance should be made for lapping. The tolerance of the length of product supplied is +0, -4mm.

LAPPING

Structural laps for **LCP TOPHAT®** require a minimum 10% lap length (5% at both end). End fastenings of top hats should be at least 25mm from the section end, irrespective of whether this occurs at the structure end or at an internal support. Remember to allow for this additional material over and above the span length/s when specifying, ordering or cutting section.

DELIVERY

Delivery can normally be made within 2 or 3 days, subject to the delivery location and material availability, or can be at a pre-arranged date and time. Please assist us to provide undamaged product by ensuring that suitable arrangements have been made for truck unloading. When lifting product by crane, care should be taken to ensure that the load is spread to prevent product damage. Where a crane is not available, sufficient labour must be supplied to assist in manual unloading.

FOOT TRAFFIC

LCP TOPHAT® are not designed for walking on. Residual oil may be present on these components from manufacturing. The use of appropriate cradle is recommended.

FASTENERS

For fixing sheeting to **LCP TOPHAT®**

Use No. 12 self-drilling and self-tapping, Type 17 screw or proprietary batten screws for battens of 0.75mm thickness or less.

For fixing **LCP TOPHAT®** to supporting structure. (At least two fasteners are required at each connection – size to be as determined for design capacity).

Use No. 12 x 20mm self-drilling and self-tapping screws, or

Use No. 14 x 22mm self-drilling and self-tapping screws.

For fixing **LCP TOPHAT®** to truss or rafter. (At least two fasteners are required at each connection).

Use No. 10 x 16mm self-drilling and self-tapping screws for G450 steel of at least 1.9mm thickness or for G550 steel of at least 1.0mm thickness.

Use No. 12 x 20mm self-drilling and self-tapping screws for G450 steel of at least 1.5mm thickness. Use No. 10 x 35mm type 17 screws into softwood.

Use No. 10 x 25mm type 17 screws into hardwood (F11 or better).

CLEAN UP

LCP Building Products Pte. Ltd. recommend that good trade practice be followed when using these products.

WELDING

LCP Building Products Pte. Ltd. does not recommend the welding of top hats. The heat produced in welding will affect the material properties of the high tensile cold-formed steel used by **LCP Building Products Pte. Ltd.** in all its top hats. In many instances, considerable stress concentrations are likely to arise, even with good quality welding. In addition, welding will locally remove the galvanised coating leading to a potential reduction in durability.

IMPORTANT NOTE: The information published in this brochure is as far as possible accurate at the date of publication, however, prior to application in a particular situation, **LCP Building Products Pte. Ltd.** recommends that you obtain qualified expert advice confirming the suitability of product(s) in question for the application proposed. While **LCP Building Products Pte. Ltd.** accepts its legal obligations, be aware however that to the extent permitted by law, **LCP Building Products Pte. Ltd.** disclaims all liability (including liability for negligence) for all losses and damages resulting from the use of the information provided in this brochure.



LCP BUILDING PRODUCTS PTE. LTD.
CO. No. 200009173 C

No. 6 Gul Circle, Singapore 629562

Tel: (65) 6865-1550 Fax: (65) 6861-4218
Email: lcp@lcp.sg website: www.lcp.sg

LCP BUILDING PRODUCTS PVT. LTD.
(CO. No. U28112 TN2004 PTC053236)

Old No.6, New No.17, 4th Floor,
Viswanathapuram Main Road,
Kodambakkam, Chennai – 600 024, India

Tel: + 91-44 -298 92772
Fax: + 91-44 -298 92772
Email: lcpindia@lcpgroup.asia
website: www.lcpindia.com

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